

Description of the male of *Hersilia vicina* Baehr & Baehr, 1993 from northeastern Thailand, with notes on the *albomaculata*-group (Araneae, Hersiliidae)

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Description of the male of *Hersilia vicina* Baehr & Baehr, 1993 from northeastern Thailand, with notes on the *albomaculata*-group (Araneae, Hersiliidae). - New material of *Hersilia vicina* Baehr & Baehr, 1993 has become available from Pa Hin Ngam and Nam Nao National Parks, northeastern Thailand. From that material the male of *Hersilia vicina* is described and illustrated for the first time. It can be recognized by the curved embolus gradually tapering towards its tip and differs from other males of the *albomaculata*-group by the presence of strong dorsal spines on the slightly elevated ridge of the palpal tibia, and by the hook-shaped basally excavated tegular apophysis. The newly discovered male of *H. vicina* confirms that the *albomaculata*-group is a distinct species-group.

Keywords: Taxonomy - conspecific sex - *albomaculata*-group - Pa Hin Ngam National Park - Khao Yai National Park - Nam Nao National Park.

INTRODUCTION

The hersiliid fauna of Thailand is poorly known. *Hersilia* Audouin 1826 is the largest and most diverse genus within the Hersiliidae, comprising approximately 75 described species distributed over the tropics of Africa and Asia, and in parts of Australia (Baehr & Baehr, 1993; Foord & Dippenaar-Schoeman, 2006; Platnick, 2007). Baehr & Baehr (1993) published a taxonomic revision of the hersiliid spiders of the Oriental Region that included the Thai species and their known distributions at that time. Foord & Dippenaar-Schoeman (2006) recently revised the Afrotropical species of the genus *Hersilia* and added fourteen new species to the genus. Five valid species are currently known from Thailand. These are *H. vicina* Baehr & Baehr, 1993 (Khao Yai National Park), *H. asiatica* Song & Zheng, 1982 (Phu Kradung National Park, Khao Yai National Park), *H. simplicipalpis* Baehr & Baehr, 1993 (Doi Suthep-Pui National Park, Khao Yai National Park), *H. striata* Wang & Yin, 1985 (Doi Inthanon National Park, Erawan National Park, Sam Roi Yod National Park) and *H. clypealis* Baehr & Baehr, 1993 (Khao Yai National Park). The first described species from

Thailand, *Hersilia siamensis* Simon, 1886, collected at a 'Canal de Bangkok, Siam' is regarded as a nomen dubium (Baehr & Baehr, 1993: 78) because the female type was presumably lost (not found in MNHN nor MSNG) and because the original description given by Simon (1886) did not include satisfactory taxonomic information on the female genitalia. *Hersilia asiatica* has a relatively broad distributional range covering the southern part of China and extending into the mountainous areas of northeastern Thailand through the Luang-Prabang Range, which is a natural boundary between Thailand and Laos (Baehr & Baehr, 1993; Song & Zheng, 1982; Song, Zhu & Chen, 1999). *Hersilia striata* occurs in China, Thailand, Myanmar and beyond the Malay Peninsula on the islands of Sumatra and Java (Baehr & Baehr, 1993; Song, 1987; Song, Zhu & Chen, 1999; Wang & Yin, 1985). *Hersilia vicina* and *H. clypealis* appear to be endemic to Thailand; each is known only from a single locality and no further information has become available after their descriptions (Baehr & Baehr, 1993). *Hersilia vicina* undoubtedly represents a species of its own but its exact placement in the species-group required further taxonomic scrutiny because of the lack of males at that time. *Hersilia simplicipalpis* has been reported from northern and northeastern Thailand. Dankittipakul (2002) collected males of another hersiliid genus from Doi Inthanon National Park but they do not belong in *Hersilia* because they possess relatively short PLS comparing to the *Hersilia* species (terminal segment of PLS 1.1-1.3 times longer than the basal one). Of the nominal species reported from Thailand, four have been recorded from the Khao Yai National Park. This indicates not only the species richness of the Thai hersiliid fauna, it also reveals that this fauna is superficially known and that more taxonomic work needs to be undertaken.

MATERIAL AND METHOD

External morphology was examined, measured and drawn with an Olympus SZX-9 stereomicroscope equipped with a drawing tube. Measurements of leg segments were taken from the dorsal side. All measurements are in millimeters. Identifications were made by examination of male and female genitalia. Epigynes were drawn in natural and cleared state (after immersing them in lactic acid for 10-20 minutes). Male palps were drawn in lateral and ventral view. Sizes of eyes are given as proportions of AME (= 1.00) in the following order: AME: ALE: PME: PLE.

The material examined will be deposited in the collections of the Muséum d'histoire naturelle de la Ville de Genève, Switzerland (MHNG) and in the collections of the Thailand Natural History Museum (TNHM) of the National Science Museum, Pathumthani Province, Thailand. Other museum acronyms: MNHN, Muséum National d'Histoire Naturelle, Paris, France; MSNG, Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy.

Abbreviations used in text and in the figures are as follows: ALE, anterior lateral eyes; AME, anterior median eyes; BS, basal segment of posterior spinneret; CO, copulatory orifices; DMP, dorsal muscular pits; DS, dorsal spine; E, embolus; EP, median epigynal projection; ID, insemination ducts; PLS, posterior lateral spinnerets; PME, posterior median eyes; PLE, posterior lateral eyes; SC, socket of spine (removed); SD, sperm ducts; SR, seminal receptacle; ST, subtegulum; T, tegulum; TA,

tegular apophysis; TB, trichobothrium; TC, tarsal spines; TS, terminal segment of posterior spinneret.

In the text 'Fig.' refers to a figure herein, while 'fig.' refers to a figure published elsewhere.

TAXONOMY

Hersiliidae Thorell, 1870

Hersilia Audouin, 1826

Hersilia vicina Baehr & Baehr, 1993

Figs 1-9

Hersilia vicina Baehr & Baehr (1993: 22, figs 18e-f), description of ♀.

HOLOTYPE: ♀, THAILAND, Nakhon Ratchasima Province, Khao Yai National Park, night collecting, forest in center, 8.xi.1987, leg. C.L. & P.R. Deeleman [MHNG, examined].

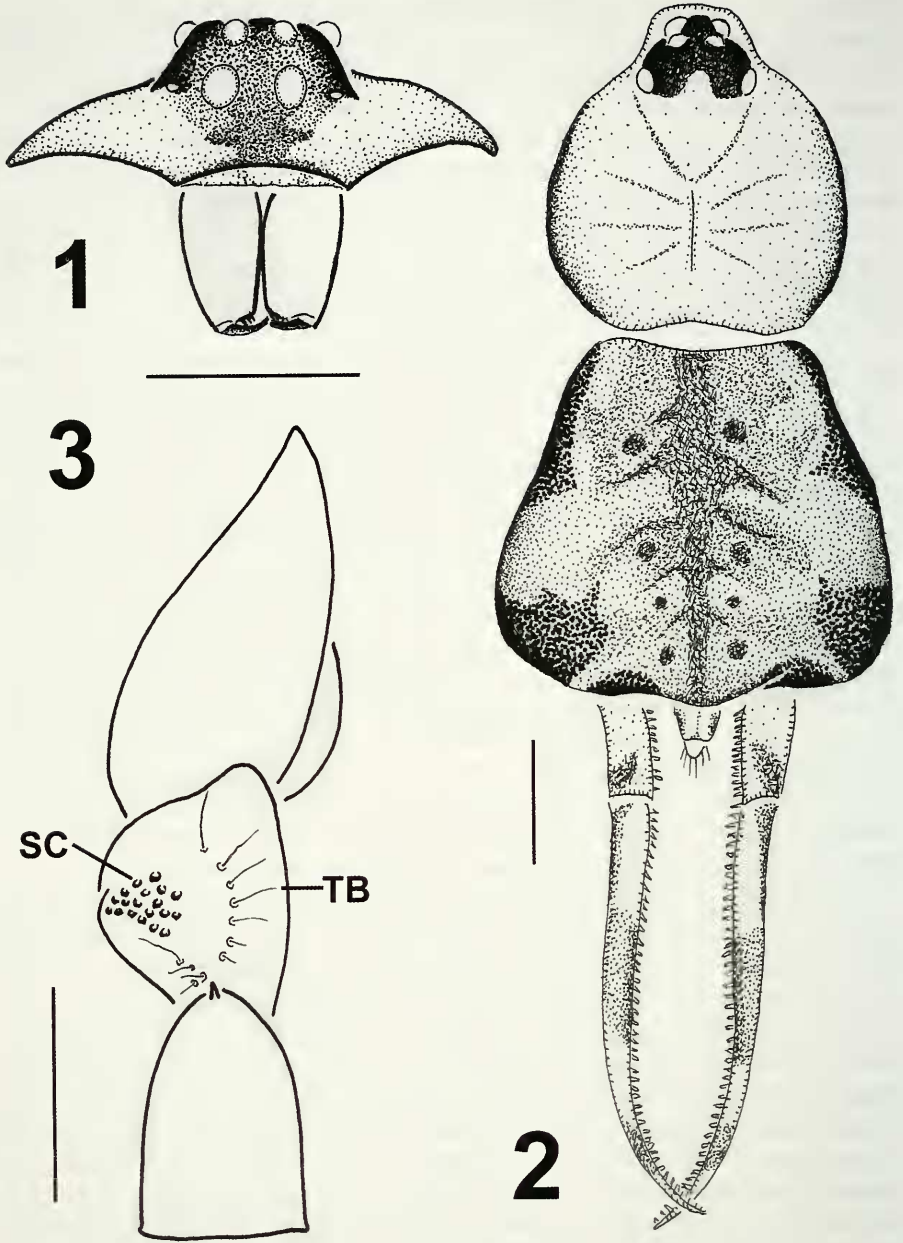
OTHER MATERIAL EXAMINED: 2 ♂, Chaiyaphum Province, Pa Hin Ngam National Park, creek at field of Siam tulip (*Curcuma alismatifolia*, Zingiberaceae), in mixed deciduous forest with pines, 15° 38.391'N 101° 23.609'E, 750 m alt., Malaise trap, 12-18.vii.2006, P. Dankittipakul & N. Likhitrakarn leg. [MHNG, TH-HS001; TNHM]. 2 ♀, Phetchabun Province, Lom Sak and Lom Kao Districts, Nam Nao National Park, 890 m, evergreen gallery forest near national park headquarters, 17.-18.vii.2005, P. Dankittipakul leg. [MHNG, TH-HS002; TNHM].

EXTENDED DIAGNOSIS: Males of *H. vicina* resemble those of *H. albomaculata* (see Baehr & Baehr, 1993: figs 16c, d) and *H. martensi* (Baehr & Baehr, 1993: figs 17c, d) by the curved embolus gradually tapering towards its extremity (Figs 4-6). *Hersilia vicina* males can be distinguished from other males of the *albomaculata*-group by: The presence of strong dorsal spines on the palpal tibia (Fig. 3); tegular apophysis hook-shaped and basally excavated (Fig. 6) (thin and membranous, with dorsal excavation in *H. albomaculata* and *H. martensi*). Females of *H. vicina* can be easily recognized by: The digitiform median extension of the epigyne (Fig. 7); the elongated and curved insemination ducts with a globular anterior part (Figs 8, 9); two spherical seminal receptacles clearly separated and arising posteriorly on both sides (Figs 8, 9).

DESCRIPTION: MALE. Total length (excluding spinnerets) 5.09. Carapace length 2.38, width 2.50. Opisthosoma length 2.71, width 3.24. PLS length 4.19; BS length 0.84; TS length 3.35. Eye ratios: 1.0: 0.46: 0.86: 0.93. Clypeus 0.32 high.

Prosoma (Figs 1, 2) dorsoventrally flattened, with slightly elevated eye area and low clypeus, pars thoracica widest. Carapace yellow, with greenish brown radial striae radiating from deep longitudinal fovea; lateral margins black, widest posteriorly, clothed with conspicuous setae. Clypeus (Fig. 1) pale grey, with a cross-shaped marking medially; clypeal margin with faint black stripe. Chelicerae (Fig. 1) basally yellow, distal part with irregular dark greenish patches; three reddish brown promarginal teeth on cheliceral furrow. Sternum, labium and maxillae yellow. Eight eyes arranged in two strongly recurved rows (Figs 1, 2); MOQ wider than long, wider in front than behind (Fig. 1); eye area with distinct dark reddish brown pigmentation, with red pigment encircling ALE; a red longitudinal band running between PME and fovea. Patellae brown, other leg articles greenish brown, with green annulations on femora; distal part of tibiae dark brown.

Opisthosoma (Fig. 2) widest in posterior third, with four pairs of dorsal muscular pits, the second ones largest. Dorsum mottled with irregular white patches;



FIGS 1-3

Hersilia vicina Baehr & Baehr, male from Pa Hin Ngam National Park: (1) Prosoma, frontal view. (2) habitus, dorsal view. (3) right palpus, dorsal view. Scale bars = 1.0 mm (1, 2), 0.5 mm (3).

cardiac impression dark brown, forming folium, extending to caudal area; anterolateral and posterolateral borders dark. Venter pale green, mottled with small, white irregularly-shaped patches, marked with a series of muscular pits arranged in a V-shaped pattern. Posterior lateral spinnerets long; terminal segment more than two times longer than basal one; numerous aciniform gland spigots on entire length of terminal segment; basal segment with dorsal patch of reddish pigment distally; terminal segment with two disconnected reddish bands.

Leg measurements:

	I	II	III	IV
Femur	5.08	5.36	1.64	4.61
Patella	1.12	1.05	0.50	0.85
Tibia	5.23	5.42	0.98	2.71
Metatarsus	7.93	7.90	1.20	3.02
Tarsus	0.85	0.91	0.63	0.87
Total	20.21	20.64	4.95	12.06

Male palp (Figs 3-6): Palpal tibia provided with a slightly elevated dorsal ridge carrying 17-20 relatively long spines (Figs 3, 6, SC, DS) with reddish basal and white distal part; dorsal side with a row of seven retrodorsal trichobothria (TB) arranged in a bent line and with a group of four short prodorsal-basal trichobothria (Fig. 3). Cymbium relatively short, with two apical spines (Figs 4-6, TC). Tegulum (T) round, pale yellow, with distinct dark brown sperm duct (Figs 4-6). Embolus (E) filiform, curved to 3/4 of a circle, laterally with a small triangular denticule near its tip (Figs 4-6). Tegular apophysis (TA) hook-shaped, apically inserted, pointed distally, basally excavated (Fig. 4), visible as a dark anteriorly curved spine rising from a round membranous base when viewed from the lateral sides (Figs 5, 6).

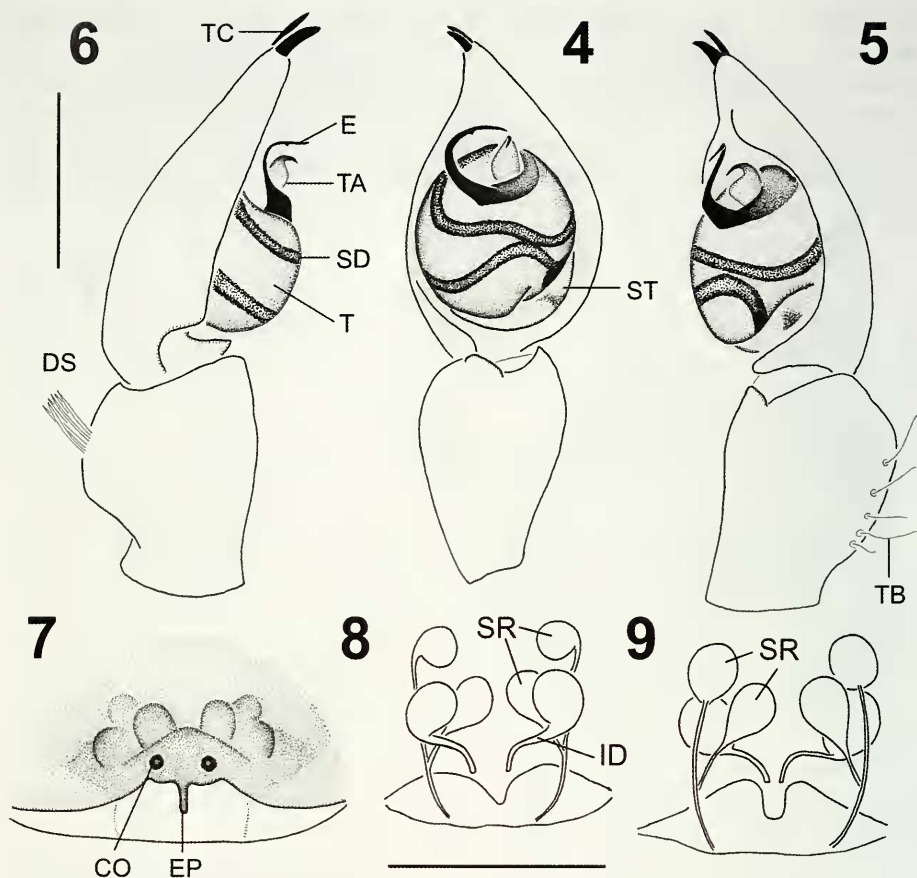
FEMALE (holotype). Total length 4.86. Carapace length 2.11, width 2.15. Opisthosoma length 3.05, width 2.58. PLS length 3.75; BS length 0.82; TS length 2.93. Eye ratios: 1.0: 0.37: 0.96: 0.95. Clypeus 0.38 high.

As the male but darker in color. Opisthosoma widest in the middle. Dorsum greenish black; cardiac impression dark green, occupying 3/4 of opisthosoma length. DMP variable in size, third and fourth pairs circular, relatively small, second ones largest.

All legs broken behind trochanter or femur.

Epigyne and vulva (Figs 7-9): Epigyne (Fig. 7) posteriorly excavated; epigynal plate lightly sclerotized, with slightly elevated triangular median ridge and digitiform posterior projection (EP); lateral borders invaginated. Copulatory orifices (CO) anterior to epigynal projection, clearly marked with red pigmentation. Vulva (Figs 8, 9) with insemination ducts (ID) coiled and tubular, widened anteriorly to form spherical structures. Two globular seminal receptacles (SR) lying dorsally of spherical portion of insemination duct; thin, long receptacular stalks basally running into a single thin fertilization duct on each side.

NEW FEMALE (from Nam Nao National Park). Total length (excluding spinnerets) 5.57. Carapace length 2.24, width 2.18. Opisthosoma length 3.19, width



FIGS 4-9

Hersilia vicina Baehr & Baehr, male (4-6) and female holotype (7-9): Right male palpus, (4) ventral, (5) retrolateral and (6) prolateral view. Epigyne, (7) ventral view. Vulva, (8) ventral and (9) dorsal view. Scale bars = 0.5 mm (4-6), 0.25 mm (7-9).

2.63. PLS length 4.59; BS length 0.94; TS length 3.65. Eye ratios: 1.0: 0.35: 0.89: 0.97. Clypeus 0.35 high.

Coloration and pattern as in the male but generally darker.

Leg measurements:

	I	II	III	IV
Femur	5.40	5.03	2.91	4.80
Patella	0.98	0.82	0.65	0.81
Tibia	?	5.16	1.50	?
Metatarsus	?	7.53	1.72	?
Tarsus	?	0.86	0.71	?
Total	?	19.4	7.49	?

DISTRIBUTION: Northeastern Thailand: The provinces of Nakhon Ratchasima (type locality), Chaiyaphum (new locality) and Phetchabun (new locality). Baehr & Baehr (1993: 23) erroneously stated that the female holotype of *H. vicina* was collected from southern Thailand.

DISCUSSION

Baehr & Baehr (1993) established the *albomaculata*-group to accommodate three *Hersilia* species from Nepal, southeastern China and Thailand. The species-group comprises *H. albomaculata* (male and female known), *H. martensi* (only male known) and *H. vicina* (female and now also male known). The following characteristics of this species-group were given by Baehr & Baehr (1993). Members of the *albomaculata*-group are generally small, extremely long-legged species, with leg I slightly longer than leg II, eye area and clypeus are relatively low. The males of this group are distinguishable by: The embolus narrowed and curved; the simple tegular apophysis excavated, situated distally on the tegulum; and by the absence of a spinose ridge on the male palpal tibia. The females are distinguished by a simple epigyne without peculiarity, the vulva with coiled insemination ducts and one or two pairs of well separated seminal receptacles.

Previously the taxonomic affinity of the *albomaculata*-group was obscure. The female of *H. vicina* was only tentatively included in this species-group because the female of *H. martensi* has not yet been described and the female of *H. albomaculata* from China was not known to Baehr & Baehr (1993), who obtained their information from the original description and illustration given by Wang & Yin (1985). With the discovery of the male of *H. vicina* described in here, the *albomaculata*-group is sufficiently distinguishable from other species-groups. The putative monophyly of the species-group is here supported by morphological characters of males which are considered synapomorphic. These characteristics are the curved and narrowed embolus which forms a twisted circle, and the simple tegular apophysis which is situated distally on the tegulum.

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